

What is claimed is:

1. A method for transferring audio and video signals and power between a remote source and a central processor over a single coaxial cable in an audio/video security system, comprising:

5 modulating a carrier signal with an audio signal and a video signal in a camera at a remote location;

10 transmitting the carrier signal on the single coaxial cable to an audio/video processor located at a central control location;

15 receiving and demodulating the carrier signal into an audio component and a video component in the audio/video processor for display and acoustic monitoring;

transmitting power from the audio/video processor to the remotely located camera over the single coaxial cable; and

15 receiving and regulating the power in the remotely located camera for powering electronic components within the remotely located camera.

2. The method of claim 1, wherein the steps of transmitting the carrier signal and

20 transmitting power over the single coaxial cable are conducted simultaneously.

3. The method of claim 1, further comprising:

combining the power and the modulated carrier in the audio/video processor; and splitting the power and the modulated carrier in the remotely located camera.

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4. The method of claim 1, further comprising displaying the video component on a video monitor and annunciating the audio component on a speaker.

5. The method of claim 1, wherein:

30 the step of receiving and demodulating the carrier signal comprises receiving and demodulating a plurality of carrier signals into a plurality of audio

components and a plurality of video components in the audio/video processor for display and acoustic monitoring; and

5 the step of transmitting power from the audio/video processor comprises transmitting power from the audio/video processor to a plurality of remotely located cameras over a plurality of single coaxial cables whereby a single coaxial cable is connected to each camera.

10 6. The method of claim 5, further comprising displaying the plurality of video components sequentially on a video monitor and annunciating the plurality of audio components sequentially on a speaker.

15 7. The method of claim 5, further comprising displaying the plurality of video components simultaneously on a video monitor and annunciating the plurality of audio components simultaneously on a speaker.

8. The method of claim 1, further comprising selecting the power in the remotely located camera from a remotely located power supply positioned near the camera.

20 9. The method of claim 5, further comprising selectively disabling transmitting power from the audio/video processor to selected cameras.

10. The method of claim 1, wherein the video signal represents a black and white image.

25 11. The method of claim 1, wherein the video signal represents a color image.

12. The method of claim 1, wherein:

the step of modulating a carrier signal comprises modulating a carrier signal with a video signal in a camera at a remote location; and

the step of receiving and demodulating the carrier signal comprises receiving and demodulating the carrier signal into a video component in the audio/video processor for display monitoring.

5        13. The method of claim 5, further comprising:  
          selecting a remotely located camera having a standard video signal output  
          connected to the audio/video processor and an associated remotely located  
          power supply;  
          disabling the transmitting power from the audio/video processor to the selected  
10        10        remotely located camera over the single coaxial cable; and  
          receiving the standard video signal from the selected remotely located camera by  
          the audio/video processor for display monitoring.

15        14. A system for transferring audio and video signals and power between a remote  
          source and a central processor over a single coaxial cable in an audio/video security  
          system, comprising:

20               means for modulating a carrier signal with an audio signal and a video signal in a  
          camera at a remote location;  
          means for transmitting the carrier signal on the single coaxial cable to an  
          audio/video processor located at a central control location;  
          means for receiving and demodulating the carrier signal into an audio component  
          and a video component in the audio/video processor for display and acoustic  
          monitoring;  
          means for transmitting power from the audio/video processor to the remotely  
25        25        located camera over the single coaxial cable; and  
          means for receiving and regulating the power in the remotely located camera for  
          powering electronic components within the remotely located camera.

30        15. The system of claim 14, wherein the means for modulating a carrier signal  
          comprises an audio/video modulator for amplitude modulating the carrier signal with the  
          video signal and frequency modulating the carrier signal with the audio signal.

16. The system of claim 14, wherein the means for demodulating the carrier signal comprises an audio/video demodulator for amplitude demodulating the carrier signal for obtaining the audio component and frequency demodulating the carrier signal for 5 obtaining the video component.

17. The system of claim 14, further comprising means for combining the power and the modulated carrier in the audio/video processor and means for splitting the power and the modulated carrier in the remotely located camera.

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18. The system of claim 14, wherein:

the means for receiving and demodulating the carrier signal comprises means for receiving and demodulating a plurality of carrier signals into a plurality of audio components and a plurality of video components in the audio/video processor for display and acoustic monitoring; and

the means for transmitting power from the audio/video processor comprises means for transmitting power from the audio/video processor to a plurality of remotely located cameras over a plurality of single coaxial cables whereby a single coaxial cable is connected to each camera.

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19. The systems of claim 14, further comprising a switch in the remotely located camera for selecting the power from a remotely located power supply positioned near the camera.

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20. The system of claim 14, wherein:

the means for modulating a carrier signal comprises modulating a carrier signal with a video signal in a camera at a remote location; and

the means for receiving and demodulating the carrier signal comprises receiving and demodulating the carrier signal into a video component in the audio/video processor for display monitoring.

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21. The system of claim 18, further comprising:

a plurality of switches in the audio/video processor for selecting a remotely located camera having a standard video signal output connected to the audio/video processor and an associated remotely located power supply;

5 means for disabling the transmitting power from the audio/video processor to the selected remotely located camera over the single coaxial cable; and means for receiving the standard video signal from the selected remotely located camera by the audio/video processor for display monitoring.

10 22. A system for transferring audio and video signals and power between a remote source and a central processor over a single coaxial cable in an audio/video security system, comprising:

a plurality of remotely located cameras, each camera connected by a single coaxial cable to an audio/video processor at a central control location;

15 a plurality of remotely located microphones, each microphone positioned in close proximity to and electrically connected to a remotely located camera; and the audio/video processor connected to a video monitor and a speaker, in addition to being connected to each of the plurality of cameras by a single coaxial cable.

20 23. The system of claim 22, wherein each camera comprises:

a video converter connected to a sender translator video input by a video connection and to a sender translator by a power connection through a switch;

25 an external power supply connector connected to the switch;

an external microphone connector connected to the sender translator microphone input; and

a coaxial cable connector connected to the sender translator.

24. The system of claim 22, wherein the audio/video processor comprises:

30 a plurality of coaxial connectors connected to a plurality of receiver translators;

an audio output from each receiver translator connected to processing circuitry;

5 a video output from each receiver translator connected to the processing circuitry;  
a power supply connected to the processing circuitry, the receiver translators, and  
to switches connected to the receiver translators for selectively disabling  
power transmission to remotely located cameras and enabling standard video  
signals from the selected cameras to be accepted by the processing circuitry;  
10 a video monitor connector connected to the processing circuitry; and  
an audio speaker connector connected to the processing circuitry.

25. The system of claim 23, wherein the sender translator comprises:

10 an audio level adjustment connected between the microphone input and an audio  
modulator input of an audio/video modulator;  
a video modulation adjustment connected between the video converter input and a  
video modulator input of the audio/video modulator;  
15 a voltage regulator with input connected to a splitter power output and output  
connected to the audio/video modulator and a video converter power  
connection; and  
the splitter connected to a coaxial cable connector for connecting to an  
audio/video processor, the splitter power output connection connected to the  
voltage regulator, and the splitter carrier signal input connected to a mixer  
20 output of the audio/video modulator.

26. The system of claim 25, wherein the audio/video modulator comprises:

25 the audio modulator input connected to the audio level adjustment and an audio  
modulator output connected to a frequency generator;  
a frequency generator output connected to a mixer audio input;  
the video modulator input connected to the video modulation adjustment and a  
video modulator output connected to an input of a video carrier generator;  
a video carrier generator output connected to a mixer video input; and  
the mixer output connected to the splitter.

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27. The system of claim 24, wherein each of the receiver translators comprises:

5 a connection between a coaxial cable connector and a combiner camera input;  
a power input connection between a power input connector, a voltage regulator  
input and a combiner power input;  
a voltage regulator output connected to an audio/video demodulator;

10 a filter input connected to a combiner carrier signal output;  
a filter output connected to an input of an IF amplifier of the audio/video  
demodulator;  
an audio output driver having an input connected to the output of a sound detector  
of the audio/video demodulator and an output connected to an audio  
processing circuitry output; and

15 a video output driver having an input connected to a video output of a video  
amplifier of the audio/video demodulator and an output connected to a video  
processing circuitry output.

20 28. The system of claim 27, wherein the audio/video demodulator comprises:  
an IF amplifier having the input connected to the filter output and an output  
connected to an input of a video demodulator;  
an output of the video demodulator connected to an input of the video amplifier;  
the video output of the video amplifier connected to the input of the video output  
driver and an audio output of the video amplifier connected to an input of an  
IF filter;  
an output of the IF filter connected to an input of a sound IF amplifier; and  
an output of the sound IF amplifier connected to the sound detector whose output  
is connected to the input of the audio output driver.

25 29. The system of claim 24, wherein the processing circuitry generates a video  
monitor signal that is sent to the video monitor for sequential display of images from the  
plurality of cameras, and generates an audio speaker signal that is sent to the speaker for  
sequential annunciation of sound from the plurality of microphones synchronized with  
30 the monitor displayed images.

30. The system of claim 24, wherein the processing circuitry generates a video monitor signal that is sent to the video monitor for simultaneous display of images from the plurality of cameras, and generates an audio speaker signal that is sent to the speaker for selected annunciation of sound from one of the plurality of microphones.

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